Wisconsin
Department of Commerce

Approval # 20020020
(Replaces 980007-U)

Environmental & Regulatory Services Division
Bureau of Petroleum Products and Tanks
201 West Washington Avenue
P.O. Box 7837
Madison, WI 53707-7837

Wisconsin COMM 10 Material Approval

Equipment: Enviroflex, Omniflex, Marinaflex, Monoflex, Vaporflex and Remote Fill Nonmetallic Underground Piping

Manufacturer: Total Containment, Inc.
A130 North Dr.
P.O. Box 939
Oaks, PA 19456

Expiration of Approval: December 31, 2007

SCOPE OF EVALUATION

Enviroflex, Onmiflex, and Marinaflex nonmetallic underground primary flexible piping; Enviroflex nonmetallic underground secondary containment flexible piping; Monoflex and Vaporflex flexible vent pipe; and Remote Fill nonmetallic underground flexible piping, manufactured by Total Containment, Inc., were evaluated for use as piping for underground storage tank systems in accordance with **s. Comm 10.51 (2)** of the current edition of the Wisconsin Administrative Flammable and Combustible Liquids Code.

This evaluation summary is condensed to provide the specific installation, application and operation parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – Comm 10.

DESCRIPTION AND USE

Eniviroflex primary flexible piping (designated by the “PP” prefix in the product code) is available in ½, ¾, 1-inch sizes for use in diesel generator systems and 1 ½ , 2 ½, 4-inch sizes for use in underground storage tank systems. Omniflex and Marinaflex primary flexible piping with integral secondary containment (designated by the “CP” prefix in the product code) are available in 1 ½ and 2 ½ -inch sizes for use in underground storage tank systems. The Marinaflex piping is also uniquely designated by the use of a “B” suffix in the product code. All primary piping consists of either a Nylon/Urethane inner tube or Forton inner tube (designated by an “F” suffix in the product code), a fiber-reinforced layer, and a double layer of polyethylene.

The Enviroflex flexible secondary containment piping (designated by the “SP” prefix in the product code) is used as secondary containment piping for either of the primary piping products, Enviroflex, Omniflex, and Marinaflex. It is not intended to be used to transfer fluids under pressure greater than 5 psig.

The Monoflex and Vaporflex flexible vent piping (designated by the “SP” prefix in the product code) are used to vent vapors from underground storage tanks and can be used for vapor recovery systems. It is used to contain and transfer the vapors and condensate from both petroleum and alcohol-based fuels. It is not intended to be used to transfer fluids under pressure greater than 5 psig or vacuum less than 13 in-Hg.

The Remote Fill piping (designated by the “RF” prefix in the product code) is used to provide for filling of a tank from a location remote from the tank itself. It is not intended to be used to transfer fluids under pressure greater than 5 psig.

All of the flexible piping listed in this material approval are fully compatible with petroleum products, alcohol products, and their blends.

TESTS AND RESULTS

Enviroflex, Omniflex, Marinaflex, Monoflex, Vaporflex, and Remote Fill products covered by this approval were tested and listed by Underwriters Laboratories, Inc.

LIMITATIONS / CONDITIONS OF APPROVAL

- Critical performance parameters for the **Enviroflex** flexible primary piping:

Product Code	Pipe Size (in.)	Minimum Bend Radius (in.)[1]	Bulk Modulus[2] (psi)
PP0500	½	6	NA[3]
PP0750	¾	6	NA[3]
PP1000	1	6	NA[3]
PP1503	1 ½	24	1167
PP1503F	1 ½	24	1167
PP2503	2 ½	24	1167
PP2503F	2 ½	24	1167
PP4003F	4	84	NA

1: Terminating fitting bend radius is the same as minimum bend radius.
2: Calculated value assuming 73.4°F, nominal wall thickness, 50-year creep allowance, no contribution from barrier layer.
3: This piping is typically used on suction systems only, a bulk modulus value is not necessary for this application.

- Critical performance parameters for the **Omniflex** flexible primary and secondary containment (co-axial) piping:

Product Code[1]	Pipe Size (in.)	Minimum Bend Radius (in.)[2]	Bulk Modulus[3] (psi)
CP1503	1 ½	24	1167
CP1503F	1 ½	24	1167
CP2503	2 ½	48	1167
CP2503F	2 ½	48	1167

1: All products have integral secondary containment.
2: Terminating fitting bend radius is the same as minimum bend radius.
3: Calculated value assuming 73.4°F, nominal wall thickness, 50-year creep allowance, no contribution from barrier layer.

- Critical performance parameters for the **Marinaflex** flexible primary and secondary containment (co-axial) piping:

Product Code[1]	Pipe Size (in.)	Minimum Bend Radius (in.)[2]	Bulk Modulus[3] (psi)
CP1503B	1 ½	24	1167
CP1503BF	1 ½	24	1167
CP2503B	2 ½	48	1167
CP2503BF	2 ½	48	1167

1: All products have integral secondary containment.
2: Terminating fitting bend radius is the same as minimum bend radius.
3: Calculated value assuming 73.4°F, nominal wall thickness, 50-year creep allowance, no contribution from barrier layer.

- Critical performance parameters for the **Enviroflex** flexible secondary containment piping:

Product Code	Pipe Size (in.)	Minimum Bend Radius (in.) [1]	Bulk Modulus[2] (psi)
SP4500	4 ½	36	NA
SP4500B	4 ½	36	NA
SP6000[3]	6	48	NA
SP6000B[3]	6	48	NA

1: Terminating fitting bend radius is the same as minimum bend radius.
2: Secondary containment piping is not for pressurized service, a bulk modulus value is not necessary for this application.
3: This product is not UL-Listed, however the material used in its manufacture is the same as the UL-Listed SP4500 product. Since both products are intended for non-pressurized service the limiting condition results from material properties not mechanical properties. Material properties are not influenced by size unlike mechanical properties.

- Critical performance parameters for the **Monoflex** and **Vaporflex** flexible vent piping:

Product Code	Pipe Size (in.)	Minimum Bend Radius (in.) [1]	Bulk Modulus[2] (psi)
SP2501	2½	36	NA
SP2501F	2½	36	NA
SP2503F	2 ½	36	NA

1: Terminating fitting bend radius is the same as minimum bend radius.
2: Vent containment piping is not for pressurized service, a bulk modulus value is not necessary for this application.

- Critical performance parameters for the **Remote Fill** flexible piping:

Product Code	Pipe Size (in.)	Minimum Bend Radius (in.) [1]	Bulk Modulus[2] (psi)
RF4000	4	48	NA
RF4000F	4	48	NA
RF4003	4	72	NA
RF4003F	4	72	NA

1: Terminating fitting bend radius is the same as minimum bend radius.
2: Remote fill piping is not for pressurized service, a bulk modulus value is not necessary for this application.

- Enviroflex, Omniflex, Marinaflex, Monoflex, Vaporflex, and Remote Fill piping are approved as meeting the design and construction standards for underground piping as specified in **s. Comm 10.51 (2)**.

- Enviroflex, Omniflex, Marinaflex, Monoflex, Vaporflex, and Remote Fill piping are approved for installation without the flex connectors specified in **s. Comm 10.51 (2)(e)**.

- Enviroflex, Omniflex, Marinaflex, Monoflex, Vaporflex, and Remote Fill piping are approved for underground (buried) installations only. A maximum of 3 inches of low melting point materials may be exposed at the point where the piping enters a sump.

- Installation, use and maintenance of all products shall be in accordance with the manufacturer's recommendations and this approval. In the event of conflicts, the stricter requirement shall govern.

- Leak detection for the piping system shall be provided in accordance with **s. Comm 10.60 (2)**. The specific leak detection system must be shown on the plans that are submitted for review in accordance with **s. Comm 10.10**. Automatic line leak detectors and line tightness testing methods must be specifically approved for use with flexible piping in accordance with **s. Comm 10.125**. (Note: Evaluation of these leak detection methods with the standard EPA protocol does not demonstrate acceptability for use with flexible piping.)

- The Omniflex, Marinaflex, and Enviroflex secondary containment jacket is approved for use as a secondary barrier for interstitial monitoring systems in compliance with **s. Comm 10.61 (7).**

This approval will be valid through December 31, 2007, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Reviewed by: _____

Greg Bareta, P. E.
Engineering Consultant
Bureau of Petroleum Products and Tanks

Approved by: _____ Date: _____